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The "NYSE Premium": Decomposing the "US Premium" in Compensation for CEOs of Cross-Listed Firms

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Abstract

That American CEOs earn significantly more than their counterparts in other countries has been widely documented. The current study reveals that the "US premium" might be more accurately labelled the "NYSE premium". Focusing on the constituent firms of the S&P/TSX Composite Index (the largest Canadian firms of which almost half are cross-listed on US exchanges) and after controlling for firm size, industry, and other firm level characteristics, the average premium paid to CEOs of Canadian firms listed on the NYSE was approximately 100% while the CEOs of Canadian firms listed on the Nasdaq or AMEX received no premium, when compared to CEOs of firms listed only on the TSX. Over time, the average NYSE premium has decreased from 130% in 1998 to 90% in 2010, consistent with the convergence of CEO compensation to US standards. However, there was a Nasdaq premium of 48% in 1998 which had become a Nasdaq discount of 65% by 2010, coinciding with an mass exodus of Canadian firms from the Nasdaq.

The "NYSE Premium": Decomposing the "US Premium" in Compensation for CEOs of Cross-Listed Firms

The public interest in executive compensation levels over the past 25 years has resulted, in part, from media reports of exorbitant salaries of the highest paid and most visible US CEOs. A wealth of academic studies (e.g., Abowd and Bognanno 1995; Abowd and Kaplan 1999; Murphy 1999) confirmed that CEOs in the United States are paid significantly more than their foreign counterparts confirms. In his comprehensive review, Murphy (1999) reports the total compensation for a representative CEO in the US to be more than double that of a CEO in Canada (which was near the median of the sample of 23 countries). However, a recent international study (Fernandes et. al, 2012) reports that this US premium has been shrinking over the past decade as CEO compensation (in 15 countries that mandate executive compensation disclosure) converges to that in the U.S.

CEO compensation studies routinely report the large premium for CEOs of US firms to be associated with cultural, economic and regulatory differences. The 'Prince and the Pauper" comparison between the US and UK, Conyon and Murphy, (2000) was the first country-specific study to capitalize on the many cultural, economic and regulatory parallels between the US and the UK. Despite the including comparable disclosure requirements, common language, similar capital markets and underlying economics, and similar corporate governance structures. but they still found that US CEOs earn almost 200% more than UK CEOs. However, the updated UK study by Conyon, Core, and Guay (2011) that the US premium had fallen to 40% for by 2003.

A Canada-US comparison has all the benefits of the US-UK study that Conyon and Murphy (2000) deemed to be a 'natural laboratory' for studying compensation differences, because there are very few cultural, economic and regulatory differences between Canada and the U.S. (Mittoo, 1992; Doukas and Switzer, 2000), This setting is improved upon because Canada and the US have fewer of the cultural and tax law differences pointed out by Conyon and Murphy and as neighbours in the North American market have even more shared trade and institutional practices. Zhou (1999) reports that for the period of

1991-1994, median US executive compensation levels were 3-4 times the magnitude of Canadian executives, but, e US firms in the sample were 12-15 times larger (based on sales) than the Canadian firms. Beginning with Rosen (1992), it has been well documented that CEO compensation is higher in larger firms which likely have increased managerial skill requirements, job complexity, and span of control; this finding is robust across firms, industries, countries and time. In a sample that compared median compensation for US CEOs of firms in the S&P400 Mid-Cap Industrials with CEO Canadian firms. Zhou (2000) reports that the median compensation for US CEOs was only twice that of the Canadian CEOs, but also noted that the industry composition of the Canadian firms was quite different with approximately one third of the Canadian firms in resource sector, compared to only 1 or 2% the US sample.

Southam and Sapp (2010) use a matched sample of firms in Canada and the U.S to more completely control for the well-documented impact of size and industry on executive compensation (Finkelstein and Hambrick, 1988; Smith and Watts, 1992; and Yermack, 1995), and still find a significant US premium for firms in their 1998 – 2002. However, they find no significant difference in total compensation between U.S. firms and Canadian firms that are cross-listed on US exchanges, but report a US premium of 50% for Canadian firms listed only the on the Toronto Stock Exchange (TSX). Their results suggest that the Canadian cross-listed firms compete for executive talent in a common Canada-U.S. labor market, while the Canadian non-cross-listed firms compete exclusively in the national labour market.

The current study focuses on the impact of exchange listing choice for cross-listed firms. While studies routinely treat cross-listed firms as a homogeneous population, I challenge that assumption, given that the listing requirements (for pre-tax income, total assets, and market capitalizations) are much more stringent for the NYSE than either the Nasdaq or AMEX.

Data

The sample consists all constituents of the S&P/TSX Composite Index, as listed in the December TSX Review each year from 1998 to 2010; unlike the S&P500 Index, there is no fixed number of firms

included and the constituents change as firms meet (or fail to meet) the requirements for inclusion in the index which makes up approximately 70% of the market capitalization of the TSX. In any given year, almost half of the firms are cross-listed on US exchanges including the NYSE, Nasdaq or AMEX (NYSE Amex Equities).

This sample provides a diverse industry assortment with 29% firms in resources (SIC 01-14; Global Industry Classification System (GICS) 10,15), 13% in manufacturing (SIC 15-29; GICS 15, 20), 6% utilities (SIC 49; GICS 50, 55), 22% in financial services (SIC 60-69; GICS 40), and 30% of the firms belong to the "other" category which mainly includes wholesale, retail, health care and IT firms. Table 1 presents summary statistics for our firms, based on exchange: NYSE, Nasdaq, AMEX, TSX from 1998 to 2010. The firm-level data on sales, market capitalization and book-to-market values are obtained from Bloomberg and all of the Canadian dollar values are converted into constant 2010 CAD using the Bank of Canada's CPI deflator. Sales and market capitalization proxy for size while book-to-market ratios control for (inverse) investment opportunities.

Based on both revenues and market capitalization, the mean and median firm size is larger for NYSE listed firms and smaller for Nasdaq and AMEX firms revealing that not all large Canadian firms opt to cross-list. The median book-to-market ratios suggest that cross-listed firms have different investment opportunities, depending on exchange listing. The AMEX firms have a very high proportion of resource firms while the Nasdaq has a very low percentage. The summary statistics suggest that the subsets of Canadian cross-listed firms are inherently different and that the greatest differences in firm characteristics are among the cross-listed firms, rather than the cross-listed and non-cross-listed firms.

Compensation Data and Levels

Compensation data for the CEO (or highest paid executive) is taken from the corporate proxy circulars filed with the Ontario Securities Commission (OSC) extracted from SEDAR. Total cash compensation (TCC) consists of salary, bonus (short-term incentives which reflect both individual and corporate performance), benefits (medical, life insurance, pension plan contributions, imputed interest on

debt, tax subsidy, housing and car allowance) and other; total compensation (TC) adds the long term incentive plan payouts (LTIP). The LTIP is composed of stock options, deferred shares, and restricted stock. Stock options are valued using the widely utilized Black-Scholes formula (Black and Scholes, 1973) even though these options are atypical because they cannot be traded, sold, hedged, or exercised until they are vested.

The Black-Scholes option valuation formula modified by Murphy (1999) incorporates continuous dividend payments and is given by the following:

$$\text{Option Value} = Pe^{-\ln(1+d)T} N(z) - Xe^{-\ln(1+r)T} N(z - s\sqrt{T})$$

where:

P = Grant-date stock price

X = Exercise price

T = Expiration term

d = Dividend yield

s = Stock-price volatility

r = Risk-free interest rate

$z = \ln(P/X) + (\ln(1 + r) - \ln(1 + d) + s^2/2)T \div s\sqrt{T}$

N() = Cumulative normal distribution function.

Proxy circulars forms provide the stock price, exercise price and expiration term. Many firms report stock option values, but there is wide variation among volatility and dividend yield formulas and choices for risk free rates, even for firms that reportedly use the Black Scholes formula. For consistency, the volatility (calculated as the standard deviation of the monthly stock returns over the previous year) and the dividend yield (prior year's annualized) are calculated using values obtained from Bloomberg and the risk-free rate is the year-end monthly rate on 10 year Canadian Government Bonds.

Table 2 illustrates the differences in the mean and median (the standard in compensation studies to decrease the influence of outliers such as those CEOs whose extreme compensation packages tend to be cited in the popular media) TC and TCC levels among exchanges. The median TC for NYSE CEOs is

almost $2 million compared to only $760 thousand for the Nasdaq CEOs and $346 for the AMEX firms. The TSX TC of $1.6 million is approximately 20% less than that of the NYSE, but more than double (or quadruple) the TC of the Nasdaq (AMEX) CEOs.

Analysis

Since the Nasdaq and AMEX firms are smaller than the TSX non-cross-listed firms (Table 1), cross-sectional regressions (Fama and MacBeth, 1973) are used to investigate the impact of listing exchange on total compensation. The model estimated is:

$$\ln(\text{Total\_Compensation}_{i,t}) = a_i + b_1\ln(\text{Revenue}_{i,t}) + b_2\text{D\_Finance}_{i,t} + b_3\text{D\_Utilities}_{i,t} + \quad (1)$$
$$b_4\text{D\_Res-Mfg}_{i,t} + \quad b_5\text{BktoMkt}_{i,t} + b_6\text{D\_NYSE}_{i,t} + b_7\text{D\_Nasdaq}_{,t} + + b_8\text{D\_AMEX}_t + \varepsilon_{i,t}$$

in which the values are for firm i in year t. The independent variables are defined as follows: ln(revenue) is the natural logarithm of annual revenue in millions of 2010 CAD, three industry dummy variables (Finance, Utilities and Resource-Manufacturing with "Other" being the base industry), the book-to-market ratio, and the NYSE and Nasdaq and AMEX dummies for firms listed on these exchanges with the TSX being the base exchange.

The results of the regressions are presented in Table 3 with the first column including the entire 1998 – 2010 sample period, the second column including only 1998 data, and the last column including only 2010 data. Goodness of fit is high with R-squared values of more than 30% for all time periods. Size and the finance industry are positively and significantly related to total compensation which is consistent with prior research. The NYSE dummy variable is positive and significant for all time periods. For the entire time period, this corresponds to a "NYSE premium" of 104%[1] for the entire time period, 130% for 1998 and 93% for 2010. Additionally, while the Nasdaq dummy was insignificant over the entire sample period, in 1998, there was a "Nasdaq premium" of 49%, but by 2010, there was actually a

[1] Because the model uses ln(compensation), the premium for the estimated coefficient of 0.34 is obtained as (Exp(0.71)-1) = 1.04 and thus corresponds to a premium of about 104% for the CEOs of NYSE firms.

"Nasdaq discount" of 32%. These results suggests that the choice of exchange listing matters; CEOs of NYSE cross-listed firms are compensated differently from those listed on the Nasdaq or AMEX.

Discussion and Conclusions

These results deepen our insights into the differences in CEO compensation packages across national boundaries. Using data from 1998 to 2010 facilitates longitudinal comparisons and this study finds the NYSE premium decreasing from 130% in 1998 to 93% for 2010. This supports the suggested recent convergence in compensation to US levels in studies by Conyon, Core, and Guay (2011) and Fernandes et. al, (2012). Additionally, while the Nasdaq dummy was insignificant over the entire sample period, in 1998, there was a "Nasdaq premium" of 49%, but by 2010, there was actually a "Nasdaq discount" of 32%.

Southam and Sapp (2010) found that cross-listed Canadian firms had very similar levels of compensation relative to their U.S. counter-parts, suggesting that the Canada-U.S. labour market is "mildly segmented" (Errunza and Losq, 1985) -- not segmented for the cross-listed firms, yet segmented for the noncross-listed TSX firms. The current study suggests the executive labour market is segmented for the Nasdaq and AMEX firms since cross-listing on the NYSE will cause the US premium to disappear, cross-listing on the Nasdaq or AMEX will not.

Coffee (1999) and Stulz (1999) suggest that foreign firms may list in the U.S. as a bonding mechanism since cross-listing subjects firms to U.S. securities laws and requires that firms conform to U.S. GAAP to ensure accountability. Many Canadian firms take advantage of this and by cross-listing, bond themselves to U.S. regulations which may impact compensation in the executive labour market. Although Southam and Sapp (2010) could not disprove the bonding hypothesis, is does seem inconsistent with the fact that Canada has the largest number of U.S. cross-listed firms, but it is the country least likely to benefit from bonding since the regulatory environment and accounting standards are so similar. The current study suggests that the US premium is not attributable to bonding since only some cross-listed firms (e.g., those listed on the NYSE) receive the additional compensation.

According to the New York Stock Exchange, an NYSE listing is a, "globally recognized signal of strength and leadership" so perhaps it is the listing requirements of this prestigious exchange (rather than the US regulatory environment) that bond the cross-listed firms and ensures quality and integrity. Future analysis is required to understand whether CEOs are pursuing their personal interests through cross-listing on the NYSE or whether this decision is being made to benefit the shareholders. The evidence is clear that CEOs profit personally from cross-listing, we do not know if the higher costs associated with cross-listing on the NYSE exceed the benefits to the shareholders.

Future work must also strive to better understand the costs and benefits of cross-listing and the remaining sources of segmentation between the U.S. and Canadian capital and executive labour markets; one difference is Canada's lack of a national security regulatory agency, comparable to the US SEC). Future work should also include event studies to quantity the impact the passage of the Sarbanes-Oxley Act in July 2002 and Rule 12h-6 (which enabled firms to delist without having to continue to file reports with the SEC) in 2007. Future work will also delve into the rationale for the drastic decrease (approximately 75%) in the number of Canadian firms listed on the Nasdaq over the sample period.

In conclusion, the current study suggests that the "US premium" might be more accurately labelled the "NYSE premium" as only the firms cross-listed on the NYSE appear to receive a premium relative to their counterparts listed only on the TSX. After controlling for firm size, industry, and other firm level characteristics, the average premium paid to CEOs of Canadian firms listed on the NYSE was 104% while the CEOs of Canadian firms listed on the Nasdaq or AMEX received no premium, when compared to CEOs of firms listed only on the TSX. Over time, the average NYSE premium has decreased from 130% in 1998 to 90% in 2010, consistent with the convergence of CEO compensation to US standards. However, there was a Nasdaq premium of 48% in 1998 which had become a Nasdaq discount of 65% by 2010, coinciding with an mass exodus of Canadian firms from the Nasdaq.

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TABLE 1
Summary Statistics for Firm Variables,
1998 to 2010

(in thousands of constant 2010 CAD)

NYSE		
Revenue	7,331.9	(3,650.9)
Market Cap	11,126.4	(4,365.2)
Book:Market	0.50	(0.44)
Percent Resource Firms	0.36	
Nasdaq		
Revenue	1,188.8	(668.1)
Market Cap	1,910.0	(616.7)
Book:Market	0.60	(0.52)
Percent Resource Firms	0.37	
AMEX		
Revenue	367.2	(194.8)
Market Cap	1,712.3	(776.4)
Book:Market	0.40	(0.36)
Percent Resource Firms	0.58	
Cross listed		
Revenue	6,223.7	(3,105.8)
Market Cap	9,445.0	(3,899.3)
Book:Market	0.56	(0.46)
Percent Resource Firms	0.35	
Non Cross listed		
Revenue	3,866.4	(1,283.3)
Market Cap	3,345.6	(1,319.8)
Book:Market	0.39	(0.54)
Percent Resource Firms	0.26	
All Firms		
Revenue	6,072.1	(2,235.0)
Market Cap	7,085.7	(2,208.1)
Book:Market	0.66	(0.53)
Percent Resource Firms	0.29	

TABLE 2
Summary Statistics Compensation Variables, by Exchange

(1998 to 2010, in thousands constant 2010 CAD)

Panel A: NYSE		
Total Cash Compensation (TCC)	1,931.0	(1,254.0)
Total Compensation (TC)	3,562.4	(1,914.3)
Panel B: Nasdaq		
Total Cash Compensation (TCC)	948.4	(601.6)
Total Compensation (TC)	1,298.5	(760.5)
Panel C: AMEX		
Total Cash Compensation (TCC)	299.2	(242.2)
Total Compensation (TC)	416.5	(346.7)
Panel D: Cross-Listed		
Total Cash Compensation (TCC)	1,850.7	(1,306.6)
Total Compensation (TC)	2,798.4	(1,747.2)
Panel E: Non-Cross listed		
Total Cash Compensation (TCC)	1,142.0	(684.2)
Total Compensation (TC)	1,791.7	(1,568.4)
Panel F: All Firms		
Total Cash Compensation (TCC)	1,054.3	(643.3)
Total Compensation (TC)	1,424.4	(1,411.5)

TABLE 3
Explanatory Cross-Sectional Regressions for CEO Total Compensation, by Year

	1998 - 2010			1998			2010		
	Coefficients	*t Stat*		*Coefficients*	*t Stat*		*Coefficients*	*t Stat*	
Intercept	12.66	275.94	***	11.3	59.47	** *	12.86	110.41	** *
Ln(Rev)	0.11	22.99	***	0.31	11.23	** *	0.11	10.31	** *
Bk:Mkt	-0.05	-3.92	***	0.02	-0.16		-0.3	-3.66	** *
Res-Mfg	-0.02	-0.44		0.02	0.17		-0.09	-0.82	
Util	0.3	2.45	**	0.07	0.31		0.29	0.95	
Fin	0.4	6.59	***	0.15	1.24	*	0.46	3.22	** *
NYSE	0.71	11.34	***	0.84	5.16	** *	0.66	4.47	** *
Nasdaq	0.11	1.27		0.4	2.51	**	-0.43	-2.14	**
AMEX	-0.05	-0.59		-0.33	-1.25		0.02	0.09	
Adjusted R^2	*32%*			*51%*			*30%*		